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BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

Paper No. 41

Application Number: 08/782866
Filing Date: 01/13/1997
Appellant(s): Delabastita et al.

John A. Merecki
For Appellant

EXAMINER'S ANSWER

This is in response to appellant's brief on appeal filed 7/3/2001.

(1) Real Party in Interest

A statement identifying the real party in interest is contained in the brief.

(2) Related Appeals and Interferences

A statement identifying the related appeals and interferences which will directly affect or be directly affected by or have a bearing on the decision in the pending appeal is contained in the brief.

(3) Status of Claims

The statement of the status of the claims contained in the brief is correct.

(4) Status of Amendments After Final

No amendment after final has been filed.

(5) Summary of Invention

The summary of invention contained in the brief is correct.

(6) Issues

The appellant's statement of the issues in the brief is correct.

(7) Grouping of Claims

Brief states that the claims **all stand of fall together.**

(8) Claims Appealed

The copy of the appealed claims contained in the Appendix to the brief is correct.

(9) Prior Art of Record

The following is a listing of the prior art of record relied upon in the rejection of claims under appeal.

5,283,156	Monbaliu et al.	02/1994
4,020,762	Peterson	05/1977
4,501,811	Saikawa et al.	02/1985
5,023,229	Evans et al.	06/1991
5,171,650	Ellis et al.	12/1992

4,708,925 Newman 11/1987

Harper's Dictionary of the Graphic Arts, pp. 220,221,224 & 225 (1963)

Stoffel et al., A survey of Electronic Techniques for Pictorial Image Reproduction", IEEE Trans. Commun. Vol. COM-29(12) (12/1981).

(10) Grounds of Rejection

The following ground(s) of rejection are applicable to the appealed claims:

A) Claims 1,4,6,7 and 11-12 are rejected under 35 U.S.C. § 103 as being unpatentable over either Saikawa et al. '811 or Monbaliu et al. '156, in view of Stoffel et al. (1981).

Saikawa et al. '811 teaches the use of a laser or LED to expose a diffusion transfer which is developed using an alkaline processing solution. Examples of light sources are disclosed. col 1/lines 60-63, hereinafter 1/60-63, 2/32-42 and 2/55-65) These include the low cost CW He-Ne laser. The laser exposure with a He-Ne laser used a 10^{-5} second exposure which is indicative of digital/electronic control or modulation of the beam as the He-Ne is a CW(not pulsed) laser .(example 1, column 8/line 54).

Monbaliu et al. '156 teaches the use of conventional sources, laser or LEDs for exposing silver diffusion media to form lithographic printing plates. (col 10/line 66-col 11/line 35, hereinafter 10/66-11/35). The processing is described in the abstract and claims as well as the text. The LED and semiconductor lasers conventionally have a digital controller as they may be

modulated directly through control of the power to them without the use of a separate electrooptic modulator or the like.

Stoffel et al. '(1981) teaches various techniques for use in scanning and screening images such as photographs and camera images to produce halftone images which are useful with binary output devices such as lithography, xerography or ink jet printers. (Page 1898/col 1/paragraphs 1-2). Pages 1907,1908,1915,1916 and tables I & II describe the process of error diffusion and the benefits. The output of all the images including the original output is from a versatec plotter. (page 1908/right column section G) The input of the image into a scanner, the electronic processing of the image and the output marking are shown in figure 1. The output marking is clearly not provided through a mask or the like.

It would have been obvious to one skilled in the art to include frequency modulation screening techniques such as error diffusion taught by Stoffel et al. '(1981) in the techniques of producing printing plates disclosed by either Saikawa et al. '811 or Monbaliu et al. '156 with a reasonable expectation of gaining the benefits taught by Stoffel et al. '(1981), based upon the disclosure of Stoffel et al. '(1981) that this technique is applicable to lithography and has benefits with respect to image reproduction as discussed by Stoffel et al.

The applicant argues that apart from the fact that lithography covers the computer-to-plate techniques, the use of it with frequency modulation is new and inventive. The applicant admits that Stoffel et al. specifically states that the use of the algorithms described are compatible with lithography, although optimization is not specifically discussed with respect to each. The

examiner holds this to support his position, not that of the applicant. Further the penultimate statement cited only points out to one of ordinary skill in the art that proper registration is necessary to avoid tone scale errors. The applicant does not exclude this registration process and it is generally recognized to be important in constructing multicolor images by those in the printing industry. Also the passage cited earlier by the applicant makes it clear that this is an overview and some optimization is required for each process it can be used with for it to reach its full potential. The examiner holds that this does not point away from the invention, but reminds one of ordinary skill in the art that these techniques are particularly registration sensitive. The examiner notes that passages cited by the applicant specifically point out the described techniques are general to the processes that they are taught as useful with and not directed to any particular process. The examiner maintains the rejection for the above reasons.

The applicant did not send the citations as indicated in the preamendment filed October 12, 1995. The applicant argues that neither of Saikawa et al. '811 or Monbaliu et al. '156 teach the use of screened data as the output of the laser exposure pattern and argues that both Saikawa et al. '811 and Monbaliu et al. '156 are non-analogous to Stoffel et al. '(1981). **While Saikawa et al. '811 uses a physical masking element with the laser exposure process, the obvious digital control of the laser through the extremely short exposure period is also disclosed (8/54). The use of screening seems to be implied in Monbaliu et al. '156, but it is not clear if the screening is for the exposure or the densitometry measurement. (17/52-56). Further the Monbaliu et al. '156 reference uses LED and semiconductor lasers which are directly**

digitally modulated by the power applied to the laser itself. Secondly, the first portion, ie the scanning of the image and screening of the data and the direct output of that data is fully disclosed by Stoffel et al. '(1981) as is its use in "lithography" set forth on page 1898 column 1, paragraph 2, line 3. The same terminology is used by both Saikawa et al. '811 and Monbaliu et al. '156 in their abstracts, therefore establishing a linkage between the arts and motivation to combine the teachings of Stoffel et al. '(1981) with those of the lithographic arts, including Saikawa et al. '811 and Monbaliu et al. '156. Additionally, the use of lithography as an binary output device is disclosed by Stoffel et al. Clearly, the laser exposure processes of both Saikawa et al. '811 and Monbaliu et al. '156 represent output devices. The examiner has relied upon the secondary reference to provide the motivation for the combination of these references. In Heidelberger Druckmashinen A.G. v. Hantscho Commercial products the fields of endeavor are clearly different relating to printing presses, sheet metal working and compressors. No such divergence exists here all of the art is directed to producing images. Therefore, this citation is neither as relevant or persuasive as the applicant would have it be. As set forth in the above citation on page 1377, "whether a reference is 'analogous art' is a question of fact". With respect to In re Geiger, the basis of obviousness of the combination of ingredients from three different references was at issue and from the passage in the second column of page 1278, it appears that no direction was provided to the other components. In the instant application ample direction is found within Stoffel et al., which directs on to the lithographic arts. While it does not specifically mention the complete recitation of the remaining portions of the claims, when doing so the

examiner holds that one of ordinary skill in the art would be directed to lithographic printing plates and their manufacture based upon the teachings of the binary marking/display technologies section as well as the citation of "printing technologies-**lithography**, ..." within that section. As the only way in which lithographic printing may be preformed is with a lithographic printing plate, the examiner holds that one of ordinary skill in the art would immediately recognize that this reference does direct one of ordinary skill in the art to the formation of lithographic printing plates as direct writing of the image onto the final page does not constitute lithography. The rejection is therefore maintained for these reasons.

The applicant argues that none of the references except Stoffel et al. '(1981) teach frequency modulation screening techniques and Monbaliu et al. '156 teaches autotypical screening and therefore teaches away from the claimed invention. The applicant argues that the examiner is merely picking and choosing references without a basis for combination. The examiner disagrees noting that the use of these screening techniques in lithography is taught in Stoffel et al. (1981) and specific benefits are disclosed for error diffusion as disclosed on page 1909 over other screening and thresholding methods. The examiner holds that one would expect these benefits for any of the techniques which are disclosed as useful with these types of screening and holds that this provides sufficient motivation for its use in processes which use these techniques. Specifically, Stoffel et al. (1981) teaches the benefits over periodic screening techniques in high frequency rendition in particular. Stoffel et al. (1981) would be expected to make a showing of each of the techniques and compare them in one format, but comparisons for

each and every technique would not be expected as nothing would be added by this and it would consist of mere repetition of the same benefits. Also note that gravure and lithography are both printing techniques and therefore the arguments on page 4, while more relevant than the others, is not found persuasive. Concerning the content of chapter VI, particular binary output means are not described here, but the effect of the various screening techniques is. The output means are noted in this chapter and the "input" is the sum of the information/picture/image and the screening technique used. This is not to be confused with the true input which would merely be the information/picture/image. The fact that error diffusion is a frequency modulation screening process does not prevent it from being used as to generate halftone images for printing images which closely resemble the continuous original, indeed that is exactly what the applicant uses it for. If the applicant has realized benefits other than those of the Stoffel et al. (1981) reference, then please come forward with them and these may provide a basis for patentability over the prior art It is true that Stoffel et al. (1981) covers quite a bit of ground, but all of the techniques produce halftone images as approximations of continuous tone images and lithography is among them. The output devices of the references other than Stoffel et al. (1981) are considered to be the print plates, the lasers are considered the devices used to produce these, are easily modulated in binary fashion and are used in this manner to produce the images on the printing plate substrates as the printing plates will only be binary (ink receptive/ink repellant). The examiner considers the broad disclosure of Stoffel et al. (1981) as evidence of the flexibility of the

technique and based on this does not find reason not to connect this with lithography based upon the disclosure to use this and other screening techniques with lithography.

In responses to the arguments offered in the amendment of 8/16/99, The examiner relies upon the previous responses and notes that the Stoffel reference, specifically states that "Although lithography, xerography, etc., have different microstructural characteristics, the algorithms investigated below are compatible in varying degrees *with all of them* . The optimization of the different marking processes, however will not be reviewed." Which sets forth that the intention of the document is to teach the processes and their advantages with respect to one or two particular imaging systems so that they can be compared, but not belabor these with repetition. (1899/left column under "summary") The applicant argues that they have discovered different advantages than those disclosed. The applicant has not shown the criticality of the choice of lithography and that the benefit arises from the combination of the screening technique with the lithographic printing process.

In response to the arguments offered by the applicant, these have previously addressed, but the examiner clarified a few points previously made noting that the direct output is taught by Stoffel, the He-Ne of Saikawa et al. '811 has an extremely short exposure which is indicative of digital/electronic control and Monbaliu et al. '156 prefers semiconductor lasers or LEDs the output of which is controlled directly at the laser head. The rejection stands for the reasons above.

B) Claims 1,4,5,7 and 11-12 are rejected under 35 U.S.C. § 103 as being unpatentable over Peterson '762, in view of Stoffel et al. '(1981).

Peterson '762 establishes that it is known to use a laser to form a lithographic printing plate. The process uses a mixture of a diazo composition with nitrocellulose and carbon black. The carbon black absorbs light converting it heat and heating the nitrocellulose until it combusts, removing it from the support surface. The formation of letterpress printing plates is also disclosed. The process appears to be a direct writing without a mask using the YAG pulsed laser as no mask is described. Therefore the beam modulation and direction must be controlled electronically/digitally.

It would have been obvious to one skilled in the art to include frequency modulation screening techniques such as error diffusion taught by Stoffel et al. '(1981) in the techniques of producing printing plates disclosed by Peterson '762 with a reasonable expectation of gaining the benefits taught by Stoffel et al. '(1981), based upon the disclosure of Stoffel et al. '(1981) that this technique is applicable to lithographic, letterpress and gravure printing.

See the response provided in paragraph 4 above. The examiner also directs the applicant to the teachings of relief printing in the binary marking/display technologies section as well as the citation of "printing technologies-lithography, Letterpress and gravure ..." within the halftone imagery section and notes the use of direct laser marking by Peterson '762.

C) Claims 1, 4-8 and 10-12 are rejected under 35 U.S.C. § 103 as being unpatentable over either Saikawa et al. '811, Peterson '762 or Monbaliu et al. '156, in view of Stoffel et al. (1981), Harper's Dictionary of the Graphic Arts (1963), Evans et al. '229 and Ellis et al. '650.

Harper's Dictionary of the Graphic Arts defines a "proof" as "A trial printing ..from type, plates or blocks, pulled for the purpose of correction before printing." and a "press proof" as "The last proofs to be run before the form is run on the press."

Evans et al. '229 teaches the need for a proof prior to the printing run. (1/18-34) The use of sublimation transfer printing processes to form a direct digital color proof is disclosed. (1/43-2/20 and 10/44-14/68, including the examples, where the stock is chosen to match that used in the printing process.

Ellis et al. '650 teaches the use of ablation imaging materials for pre-press proofing. (11/56-58 and examples 1 and 2)

For the purposes of examination, the examiner has held that a process which does not directly produce the proof using exclusively digital means is not a direct digital proofing technique. The examiner holds that although the process of producing proofs from the printing plates is partially digital, the last steps (ie inking and pulling) are not digital and therefore the process is not a DDP technique.

It would have been obvious to use produce a proof prior to the printing run using known techniques, such as those disclosed by Harper's Dictionary of the Graphic Arts (1963), Evans et al. '229 or Ellis et al. '650, in the process for producing a printing plate using the process of

either Saikawa et al. '811, Peterson '762 or Monbaliu et al. '156, as modified by Stoffel et al. (1981) based upon this being entirely routine within the art as evidenced by the teachings of Harper's Dictionary of the Graphic Arts (1963), Evans et al. '229 and Ellis et al. '650.

The response provided above is relied upon here without further comment as no further arguments were directed at this rejection beyond those addressed above in any of the responses filed including the appeal brief at page 16.

D) Claims 1, 4-8 and 10-12 are rejected under 35 U.S.C. § 103 as being unpatentable over either Saikawa et al. '811, Peterson '762 or Monbaliu et al. '156, in view of Stoffel et al. (1981), Harper's Dictionary of the Graphic Arts (1963), Evans et al. '229 and Ellis et al. '650, further in view of Newman '925.

Newman '925 establishes that as of filing in 1984, the ability to produce direct laser addressable plates has been an appreciated market need. This allows for computer generated images, including computer generated characters, computerized copy editing, and computerized screening of continuous tone pictures. These may be pre-viewed on a CRT of the like. This contributes savings in time, errors and expense. (1/26-40) Example 34 uses a laser diode (semiconductor laser) with scanning capabilities to expose with dwell times of 5×10^{-6} seconds.

In addition to the basis for the combination of either Saikawa et al. '811, Peterson '762 or Monbaliu et al. '156 with Stoffel et al. (1981), Harper's Dictionary of the Graphic Arts (1963), Evans et al. '229 and Ellis et al. '650 discussed above, Newman '925 provides further recognition

of the direction into the art from mechanical mask to direct laser writing of printing plates with savings in several areas and specifically describes screening of continuous tone images as one of the benefits of the electronic direct writing process as well as the pre-viewing of the image in 1984 and thereby supports within the art, the position of the examiner.

(11) Response to Argument

As the claims stands of fall together, there are no separate arguments to be addressed presented by the applicant. The examiner responds similarly.

The applicant argues that the primary references do not teach the electronic screening of the images or the use of frequency modulation screening techniques. As background a continuous tone image is scanned to obtain an electronic version and prior to output, the image is screened or filtered to adapt the process to the properties of the output device. In the case of the invention and the prior art, the images is forming into an arrangement of dots which may be written using a laser. As discussed in the specification with respect to the prior art on page 2, amplitude modulation use dots of varying sizes with an equal spacing from their centers and the size of the dots (or lack of them) controls the density of the image in that area. The frequency screening discussed in the specification on page 5 and recited in the claims uses dots of equal size and varies thier placement to achieve variations in density. (See figures 25,29

and 31 of the Stoffel et al. reference.) Error diffusion is recognized by both sides as a frequency modulation technique.

The examiner agrees that neither the scanning (in put of the original) to produce and electronic image, nor the use of frequency scanning is taught in the primary references. However, the direct modulation of the lasers is taught within each of the primary references, which is necessary for direct writing of the image onto the printing plate without a mask being present. The control of the laser output provides the modulation to form the image, rather than the mask. In the Newman reference, (1/26-40) the direct writing is specifically taught as desirable beyond the teachings of Stoffel et al.

The applicant states on page 5 of the brief that the primary references discuss only amplitude modulation using a mask. As discussed above beginning I the last paragraph of page 5 of this answer, only one of the references clearly teaches a physical mask and the others are silent with respect to it. The applicant argues on page 5 of the brief that there is no disclosure that any of the advantages of error diffusion would be realized in lithographic printing. As discussed above on page ** of this answer, Stoffel et al. Specifically describe these screening techniques used broadly with binary output devices and states that the data is a sound basis for comparing the various screening algorithms and that each of these is compatible to a varying degree with the various binary output devices. (Section IB, page 1899, left column). The applicant holds that this language implies that none of the advantages would be realized in the

lithographic arts. The examiner disagrees, holding that the trends shown in the comparisons would hold and the benefits by Stoffel et al. Set forth in tables I and II would be realized.(pages 1909 and 1919) The examiner notes that Stoffel et al. are speaking in this review article as experts in the field and would not describe the screening algorithms/processes as compatible if they were not. The applicant argues that the combination represents and rejection based upon the "obvious to try" standard rather than providing any motivation to one skilled in the art. The examiner strongly disagrees, noting that one skilled in the art would look to reduce the steps in the imaging process of the primary references by directly modulating the laser source to write the image (which is supported by Newman) without the need to produce a physical mask and further when evaluating which screening process to use would look to a reference article such as that of Stoffel et al. which provides a comparison of several. The choice of error diffusion by one of ordinary skill in the art would be based upon the comparasions of Stoffel et al. , not mere the hunting and choosing implied by the applicant. Clearly the error diffusion technique presents some benefits in terms of high frequency (minute detail) imaging as discussed above and in Stoffel et al. In tables I and II which would be of interest in lithography and it is described as the best overall.

On pages 7-10, the applicant points out possible drawbacks in the use of the error diffusion techniques, without noting that the other techniques also have drawbacks as well as benefits. The implication that the other screening processes are without fault is not a balanced reading of the reference. The applicant argues that in the plate setters of today, the high

addressibilty 2400 dpi allows for accurate rendition of details. The examiner note that this is one of the reasons that error diffusion is more applicable to lithography due to the demands of reliable isolated pixel printing (ie accuracy in pixel placement). Clearly low dpi systems would be unable to meet this constraint. The issue of halftone reproduction raised by the applicant neglects that **fact** that the output of the claimed process is binary reproduction of a continuous tone image. The output in any of these screening processes is binary. There is either a mark in a position or not. The image **approximated** by these processes (ie the original) had a continuous tone (white, greys and black), but the resulting images do not. Due to the size of the dots and the distance of viewing, they only **appear** to have tonality. The applicant correctly pints out that section IID indicates that graphic arts have a long history with electronic screening and its precursors, but neglects to points out that for the reproduction of continuous tone images (IIG summarizes) tone reproduction is conventionally done prior to the screening and detail rendition for the highlights, midtones and shadows are excellent. (Section IIE, page 1907). The figures and text in Stoffel et al. represent the opinions of experts in the art with no apparent reason for making unreasonable assertions in a peer reviewed journal. The examiner notes that the applicant has no basis for attacking their credentials or findings without evidence, noting that they have nothing at stake beyond their reputations.

The applicant argues that the lasers are not directly modulated. The examiner, who actually has laser experience with HeNe lasers notes that HeNe lasers are not pulsed but are CW (continuous wave) and that absent modulation means could not used to faciliate as

exposure of 10^{-5} seconds (10 microseconds). *It is not likely that they merely turned it on and off like a light switch with this precise and short an exposure time.* The applicant is free to suggest how an exposure for this short a period of time might be achieved through another means. The LED and semiconductor laser of Monbaliu have power supplied which are digitally controlled to provide the desired power, mode structure and wavelength. This assertion is supported by the teachings of Newman in example 34. The examiner notes that the applicant does not discuss the YAG laser of Peterson as not being digitally/electronically controlled and that direct writing is specifically taught.

The applicant has noted that the corresponding EP application was granted and has withstood an opposition. The examiner is unaware of the standards applied in the European Patent Office, including opposition proceedings, and how they compare to US practice

For the above reasons, it is believed that the rejections should be sustained.

Respectfully submitted,

Martin J. Angebranndt
Primary Examiner, Group 1750
September 7, 2001

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